FACT SHEET - OCTOBER 1999

Environmental Health

Educating Washington residents, about exposures to toxic chemicals released into the environment, for a healthier tomorrow.

Whatcom County Groundwater Contamination

PUBLIC HEALTH ASSESSMENT FINDINGS

INTRODUCTION

In 1998, Lynden community members petitioned the federal Agency for Toxic Substances and Disease Registry (ATSDR), requesting an evaluation of pesticides found in area groundwater. The evaluation, called a Public Health Assessment, was prepared for ATSDR by the Washington Department of Health (DOH) to determine if contaminated well water would affect residents' health. This fact sheet summarizes the Public Health Assessment.

PUBLIC MEETING

DOH will present all the Public Health Assessment findings. Ecology will present site investigation results, an update of interim actions, and water supply options for Bertrand Creek.

When: Wednesday—October 20, 1999—7:00-9:00 p.m.

Where: Lynden Community Center—401 Grover Street

BACKGROUND

There was a nationwide emergency suspension of ethylene dibromide (EDB), a soil fumigant, in 1983. In 1984, the Department of Social and Health Services, the health agency at that time, issued a health advisory and began investigations to determine whether EDB had migrated from soil into groundwater. Several residential and public wells near the City of Lynden contained EDB. Additional investigations over the past ten years by various federal, state, and local agencies, have revealed groundwater contaminated with pesticides in areas west and northeast of Lynden. Widespread nitrate contamination was also found in area groundwater.

Several homes in the Bertrand Creek area have well water that is contaminated with pesticides at levels above regulatory standards, known as maximum contaminant levels (MCLs). The Washington Department of Ecology (Ecology) has been providing those homes with bottled water. Ecology is also currently evaluating alternate drinking water solutions for those homes.

A 1999, exposure investigation by ATSDR and DOH demonstrated that pesticides can be released as vapors during showering and other household water usage, thus causing an exposure equal to ingestion. Based on that information, Ecology distributed shower-head filters in February 1999, to those homes with EDB and 1,2-dichloropropane (1,2-DCP) contamination in their drinking water, at or above the MCL. The use of those filters has reduced the amount of pesticides detected by about 99 percent.

A 1998 Environmental Protection Agency (EPA) investigation failed to uncover any specific sources or definite boundaries for the pesticide contamination found in area well water. However, it is likely that the pesticide contamination is from past agricultural use of soil fumigants. The nitrate contamination can be attributed to the use of manure and other fertilizers on agricultural lands.

CONTAMINANTS OF CONCERN

Contaminants of concern found in drinking water in north Whatcom County include these pesticides and nitrate:

- **ethylene dibromide** (EDB) MCL/0.05 parts per billion (ppb);
- **1,2-dichloropropane** (1,2-DCP) MCL/5 ppb;
- **1,2-dibromo-3-chloropropane** (DBCP) MCL/0.2 ppb;
- **1,2,3-trichloropropane** (1,2,3-TCP) No MCL exists (EPA set a Lifetime Health Advisory Level of 40 ppb); and
- **nitrate** MCL/10 parts per million.

There are three ways residents can be exposed to pesticide contaminated drinking water—through ingestion, breathing in vapors, and skin absorption. Nitrate exposure only occurs through ingestion.

HEALTH MESSAGES

Pesticides

Non-cancer health effects—exposure to the maximum levels of pesticides found in area groundwater is not expected to create harmful non-cancer health effects.

Cancer health effects—long-term exposure to the maximum level of EDB found in area drinking water creates a small to moderate increase in cancer risk. Exposure to the maximum levels of the other pesticides found in area drinking water creates a smaller cancer risk. Also, there is a low to very low cancer risk for some residents whose wells contain EDB and/or multiple pesticides at levels below their MCLs.

DOH's cancer risk estimates are based on worst-case exposure scenarios. A more realistic exposure would have a lower cancer risk estimate. Also, pesticide levels are decreasing in area groundwater, so future cancer risk will likely decrease. Animal studies have shown that these pesticides cause cancer. No cancer effects have been seen in humans.

Nitrate

Non-cancer health effects—exposure to nitrate at levels above the MCL (10 parts per million) could create a risk for pregnant women that might cause harm to the fetus. Infants are also at risk for methemoglobinemia when fed water containing nitrate at levels above the MCL. (This would happen when using nitrate contaminated water to make formula.)

Pesticides and Nitrate

The current levels of pesticides found in migrant camp wells are not a health concern. However, the result of a recent animal study suggests that there might be an increase in the toxicity of nitrate and pesticides when combined in drinking water. Therefore, there is concern that workers could experience a combined exposure—to elevated levels of nitrate in drinking water, while also being exposed to pesticides in soil, indoor dust, or drinking water.

RECOMMENDATIONS

1. Residents should take steps to reduce exposures if their drinking water contains pesticides at levels above the MCL. Residents should also consider steps to reduce exposures if their drinking water contains EDB at levels below the MCL along with other pesticides.
2. Pregnant women and infants should not drink water containing nitrate at levels above the MCL. The relationship between nitrate exposure and the risk of harmful health effects for a fetus and infants is unclear and should be investigated further.
3. Residents should take steps to reduce exposures if their drinking water contains nitrate at or above the MCL *and* pesticides at detectable levels.
4. Migrant farm workers and other family members should take steps to reduce exposures to pesticides in soil and indoor dust. Also, the potential impact on migrant labor camp wells from pesticide applications should be evaluated, and these wells should be sampled regularly for pesticides.

INFORMATION

For information or to request a copy of the Public Health Assessment, call Rob Duff toll free at 1-877-485-7316.

Washington State Department of Health